

REMARKS

By the above amendment, claims 1 - 6 have been canceled without prejudice or disclaimer of the subject matter thereof and new claims 7 - 14 have been presented.

Applicants note that the present invention is directed to miniaturization and the providing of a thin structure of an optical device having two light emitting elements and at least one prism mounted on a substrate. As shown in Fig. 1, for example, two light emitting devices as represented by the light emitting devices 2 and 3, is mounted on a surface of a substrate 1 and have optical axes which intersect one another. In accordance with the present invention, a prism 4 having at least one of a reflection and transmissive surface 12 is mounted on another surface of the substrate so that the at least one of the reflection and transmission surface 12 forms an angle of 45° with respect to the optical axes at the intersection thereof. As more clearly illustrated in Fig. 2, a thickness of the another surface of the substrate on which the at least one prism 4 is mounted is thinner than a thickness of the surface of the substrate in which the two light emitting elements 2 and 3 are mounted. Further, as shown in Fig. 2, the circumferences of the another surface include two circumferences which are closed in that they abut the thicker surface of the substrate whereas the other two surfaces which are opposite to the light emitting elements 2 and 3 are open. In this manner, a miniaturized and thin optical device is obtainable, noting that thin film electrodes 7, for electrical connection of the two light emitting elements 2 and 3, are provided on the surface of the substrate, in the region between the two light emitting elements, as illustrated in the drawings of this application. Furthermore, as shown in Fig. 4, the at least one prism 4 has a surface for at least one of reflection and transmission 12 and another surface for at least one

of reflection and transmission 13, arranged at different positions of the another surface of the substrate which has the thinner thickness. As shown in Fig. 6, a hole 14 is formed in the another surface of the substrate, and a photo acceptance element 15 is provided thereat for detecting light having passed through the through-hole 14, so as to obtain an indication of the output light emitted from the light emitting elements 2 and 3. Applicants submit that these features are now recited in independent claim 7 and the dependent claims, which features enable a miniaturized or thin optical device to be obtained.

As to the objection to claims 4 and 6, the rejection of claim 5 under 35 USC 112, second paragraph, the rejection of claims 1, 2 and 5 under 35 USC 102(b) as being anticipated by Nakamura et al (US Patent No. 6,985,424B1) and the rejection of claim 3 under 35 USC 103(a) as being unpatentable over Nakamura et al in view of Cheong et al (US Patent No. 7,057,999 B2), such objections and rejections are considered to be obviated by the cancellation of claims 1 - 6. Furthermore, insofar as such rejections may be considered applicable to newly added claims 7 - 14, such rejections are traversed.

Turning to Nakamura et al, while this patent discloses two light emitting elements as represented by the semiconductor laser chip 4a and the semiconductor laser chip 4b, it is readily apparent from the drawing that the optical axes of the respective chips 4a and 4b extend in parallel to one another, and not perpendicular to one another, as recited in claim 7. Furthermore, it is not seen that Nakamura et al discloses a prism having at least one of a reflection and transmission surface mounted on another surface of the substrate so that the at least one of the reflection and transmission surface forms an angle of 45 degrees with respect to the optical axes at the intersection thereof, as recited in claim 7. Applicants note that element 5

of Nakamura et al is a semiconductor mirror surface and is not a prism arranged in the manner defined, nor is it provided on a surface of the substrate which is thinner than the surface of the substrate on which the light emitting elements are arranged. Additionally, it is readily apparent that the mirror surface 5 of Nakamura et al, which is not part of a prism, is not arranged on a surface having circumferences opposite to the light emitting elements which are open. Thus, irrespective of the position set forth by the Examiner, Nakamura et al fails to disclose in the sense of 35 USC 120 or teach in the sense of 35 USC 130 the recited features of independent claim 7 and the dependent claims thereof.

With regard to the combination of Nakamura et al with Cheong et al, the Examiner cited Cheong et al as disclosing a photo detector and laser mounted on the same substrate, and wherein a through-hole is formed in a part of the substrate, and a photo acceptance element for detecting and emitting light passing through the through-hole is provided. Applicants note that Cheong et al does not overcome the deficiencies of Nakamura et al, as described above, in that Cheong et al only discloses a single light emitting element, and also does not disclose a prism arranged on another surface of the substrate which is thinner than the substrate on which the light emitting elements are formed. Furthermore, Cheong et al also fails to overcome the deficiencies of Nakamura et al with respect to the open circumferences. Irrespective of the Examiner's contentions concerning a through-hole, it is readily apparent that Cheong et al does not disclose a through-hole being provided in the substrate on which the prism is mounted, and having a photo acceptance element being arranged therein. Also, it is apparent that Cheong et al does not disclose or teach a plurality of thin film electrodes for electrical connection of the two light emitting elements, which are not provided by Cheong et al, nor that

such electrodes are provided on the surface of the substrate on which the two light emitting elements are mounted, in a region between the two light emitting elements. Accordingly, applicants submit that Cheong et al fails to overcome the aforementioned deficiencies of Nakamura et al and all claims patentably distinguish over the proposed combination of Nakamura et al and Cheong et al in the sense of 35 USC 103.

With respect to the dependent claims, the features as described above, are recited in the dependent claims and applicants submit that neither Nakamura et al nor Cheong et al disclose or teach such features in combination with the features of independent claim 7. Thus, applicants submit that the dependent claims further patentably distinguish over the cited art and should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.43301X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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